

**REMARKS/ARGUMENTS**

**I. Introduction**

- Claims 1, 3-5, 7-13, 15-18, 26-27 and 31 are pending in the application.
- Claims 1, 3-5, 7-13, 15-18, 26-27 and 31 stand rejected.
- Claims 18 and 27 are newly cancelled.
- Claims 1, 3-4, 8-13, 15-17, and 26 are currently amended.
- Claims 1, 12, 13, 16, 19, 26, 27 and 31 are the only independent claims under review.
- Claims 1, 3-5, 7-13, 15-18, and 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Vilsmeier et al. (US 6,611,700) in view of Ferre et al. (US 5,967,980).
- Claims 18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vilsmeier et al. in view of Danisch (US 6,127,672).

**II. Amendments**

Claims 1, 3-4, 8-13, 15-17, and 26 are currently amended to explicitly clarify that the curvature sensors are non-invasive devices that provide external curvature data. Claims 1, 12, 13, 16, and 26 are currently amended to make the computer a non-inferential element. Claims 16 corrects a typographical error regarding the curvature sensor.

**III. Remarks Regarding the Examiners "Response to Amendment"**

**A. The structural configuration of a computer is not a recitation of intended use**

With respect to claims 1, 12, 13, 16, 18, 26, and 27, the Examiner noted for the record that a recitation with respect to the manner in which an apparatus is intended to be employed does not impose any structural limitation upon the claimed apparatus which differentiates it from a prior art reference disclosing the structural limitations of the claims." Because a specific clause within the claims was not referenced by the Examiner, Applicant is guessing that the Examiner is referring to the limitation in the newly added "wherein" clauses. These wherein clauses were constructed with the help of the Examiner John F. Ramirez and Supervisory Patent Examiner Elieni Mantis Mercader during a personal interview conducted on Feb. 14, 2006. MPEP section 2111.04, entitled "'Adapted to,' 'Adapted for,' 'Wherein,' and 'Whereby' Clauses" states that:

The determination of whether each of these clauses is a limitation in a claim depends on the specific facts of the case. In *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005), the court held that when a "whereby" clause states a condition that is material to patentability, it cannot be ignored in order to change the substance of the invention." *Id.*

These clauses introduce conditions of patentability that if ignored, change the substance of the invention. These limitations, regard the structural configuration of a computer, not a "manner in which an apparatus is intended to be employed."

However, Applicant has decided to amend these claims to bring these structural limitations within the main body of the claim by explicitly claiming a computer element which is configured to receive external curvature data and relate the curvature of the non-invasive curvature sensor(s) to the location of the imageable fiducials.

In light of the amended claims and the argument just presented, Applicant respectfully requests that the Examiner withdraw the rejections of claims 1, 12, 13, 16, 18, 26, and 27.

**B. Because Vilsmeier teaches against the use of external sensors, the terms "external," "non-invasive," "imageable fiducials coupled to the first non-invasive curvature sensor" and "external curvature data" are sufficient to overcome the prior art.**

The Examiner states that the limitations "externally" and "imageable fiducials coupled to the first curvature sensor" are insufficient to overcome the art reference. Applicant disagrees. Vilsmeier specifically teaches against the external use of fiducial

markers in column 1, lines 35 to 54. The first sentence in this section explicitly states that "**using markers arranged on the skin surface ... involves problems.**" To delve further into the teachings of Vilsmeier, Applicant would like to recite several quotes from the two sections of the Vilsmeier specification that the Examiner cited (and copied for emphasis). First, Vilsmeier column 2, line 33 recites that "the position sensor is inserted into the body.". Second, Vilsmeier column 2, lines 38 – 42 recites that the "position sensor may be firmly anchored or fixed in place ... by means of supporting or clamping elements externally movable at the inserted position sensor." Third, Vilsmeier column 2, lines 38 – 42 discusses irradiating a site "[o]nce such a position sensor has been inserted in the body." In fact, Vilsmeier specifically teaches against the external use of fiducial markers in column 1, lines 35 to 54. For these reasons, Applicant believes that the claimed invention as amended overcomes Vilsmeier as a prior art reference. Therefore, Applicant respectfully requests that the rejections of claims 1, 12, 13, 16, 18, 26, and 27 be withdrawn.

#### IV. 35 U.S.C. 103(a) Rejections

A. **Claims 1, 3-5, 7-13,15-17, and 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Vilsmeier et al. (US 6,611,700) in view of Ferre et al. (US 5,967,980).**

a. **Applicant does not agree that Vilsmeier teaches all the limitations of the claimed subject matter except for mentioning specifically an imageable fiducials and a sensor providing an output readable by a computer."**

Applicant does not agree with the Examiners' statement that "Vilsmeier et al. teaches all the limitations of the claimed subject matter except for mentioning specifically an imageable fiducials and a sensor providing an output readable by a computer." See Office Action, page 4. As discussed in the previous section, Applicant does not believe that Vilsmeier teaches a "non-invasive curvature sensor" that provides "external curvature data" or "a computer configured to receive ... external curvature data and relate the curvature of the first non-invasive curvature sensor to the location of the imageable fiducials." Therefore, withdrawal of rejections of claims 1, 3-5, 7-13,15-17, and 31 is respectfully requested.

b. **The use of Ferre as an anticipatory reference is improper because Ferre does not disclose a sensor that is analogous to non-invasive curvature sensors claimed in the present invention.**

The use of Ferre as an anticipatory reference is improper because Ferre does not disclose a sensor that is comparable to the non-invasive curvature sensors claimed in the present invention. The Ferre uses a multipart magnetic field tracking system that includes a separate "field generator" and "field sensors." However, the present invention is a different type of sensor. The sensor in the present application is a non-multipart optical sensor that is used in part to explicitly overcome deficiencies in field generator/sensor systems. Specifically, the present application states that "[m]agnetic field tracking of instruments has been tried, but suffered from operational difficulties caused by interfering fields associated with nearby metal objects and unacceptable positional accuracy for surgical or therapeutic use."

Application, Para. [0016]. Ferre even recognizes this shortcoming in its own invention when it states that "[s]ince the presence of magnetic material might interfere with the magnetic fields these materials are to be avoided in such an

electromagnetic system.". Ferre, Column 4, lines 12-15.

Further, the fiducials in Ferre are not coupled to either a curvature sensor or an electromagnetic field position sensor. Because of these important differences, combining Ferre with Vilsmeire can not generate the claimed invention. Therefore, withdrawal of the rejections against claims 1, 3-5, 7-13, 15-17, and 31 are respectfully requested.

**B. Claims 18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vilsmeier et al. in view of Danisch (US 6,127,672).**

After careful review of the Examiners comments, Applicant has decided to cancel Claims 18 and 27. Therefore, the rejections of Claims 18 and 27 are moot.

**V. Conclusion**

The Commissioner is hereby authorized to charge any additional fees, which may be required, or credit any overpayment, to Deposit Account No. 50-3212.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for an extension for time, the Commissioner is requested to grant a petition for that extension of time

which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 50-3212.

Respectfully submitted,

/David G. Grossman, Reg. No. 42,609/

David G. Grossman  
Registration No. 42,609

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George Mason University  
Office of Technology Transfer, MSN 5G5  
4400 University Drive  
Fairfax, VA 22030  
Phone: (703) 338-6333